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Jeff Lloyd, Patent Attorney

Patent Application
Docket # KAS-103XC1
Serial No. (not yet assigned)
SUBMISSION OF SEQUENCE
LISTING 37 CFR 1821

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicants : Frederick M. Hahn, Adelheid R. Kuehle
Serial No. : (not yet assigned)
Filed : July 31, 2001
For : Manipulation of Genes of the Mevalonate and Isoprenoid Pathways to Create Novel Traits in Transgenic Organisms

Assistant Commissioner for Patents
Washington D.C. 20231

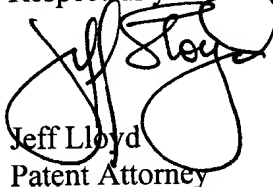
SUBMISSION OF SEQUENCE LISTING UNDER 37 CFR §1.821

Sir:

Transmitted herewith is a sequence listing under 37 CFR §§1.821 through 1.825 for the above-identified patent application.

The sequence is submitted in computer readable format and on paper. I hereby certify that the paper and computer readable copies contain the same sequence information and that no new material is added by this submission.

Respectfully submitted,


Jeff Lloyd
Patent Attorney

Registration No. 35,589

Phone No.: 407-426-7500

Address: 1000 Legion Place, Suite 1750
Orlando, FL 32801

JL/srp

Attachments: Sequence Listing on paper and in computer readable format; paperwork for filing Utility Patent Application.

SEQUENCE LISTING

<110> Hahn, Frederick

Kuehnle, Adelheid

<120> Manipulation of genes of the mevalonate and isoprenoid pathways to create novel traits in transgenic organisms

<130> KAS-103XC1

<150> 60/221,703

<151> 2000-07-31

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<170> PatentIn version 3.0

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<213> Artificial Sequence

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<223> PCR primer containing R. capsulatus DNA

<400> 21

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 cactga 1386

<210> 22

<211> 1779

<212> DNA

<213> Artificial Sequence

<220>

<223> PCR primer containing Schizosaccharomyces pombe DNA

<400> 22

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 atctctggag caacgacaac gacaacaaca acaacatga 1779

<210> 23

<211> 684

<212> DNA

<213> Artificial Sequence

<220>

<223> PCR primer containing *S. pombe* DNA

<400> 23

atgagttccc aacaagagaa aaaggattat gatgaagaac aattaagggt gatggaagaa 60
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 catttgatgg aaaatataaa taaaggctct ttgcatagag cattctctat gttcatcttt 180
 gatgagcaaa atcgcctttt acttcagcag cgtgcagaag agaaaattac atttccatcc 240
 ttatggacga atacatgttg ctcccaccca ttggatgttg ctggtgaacg tggttaatact 300
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 ggtattcaag ccaagtatat tcccaaagac aaatttcagt ttcttacacg aatccattac 420
 cttgctccta gtactgggtg ttggggagag catgaaattg actacattct tttcttcaaa 480
 ggtaaagtgt agctggatat caatcccaat gaagttcaag cctataagta tggtactatg 540
 gaagagttaa aagagatggt ttccgatcct caatatggat tcacaccatg gttcaaactt 600
 atttgtgagc attttatggt taaatggtgg caggatgtag atcatgcgtc aaaattccaa 660

gataccttaa ttcacggttg ctaa

684

<210> 24

<211> 531

<212> DNA

<213> Artificial Sequence

<220>

<223> PCR primer containing Streptomyces sp CL190 DNA

<400> 24

atgagtgagc ttataccgc ctgggttggt gacagactgg ctccggtgga caagttggag	60
gtgcatttga aagggtccg ccacaaggcg gtgtctgttt tcgtcatgga tggcgaaaac	120
gtgctgatcc agcgccgctc ggaggagaaa tatcactctc ccgggctttg ggcgaacacc	180
tgctgcaccc atccgggctg gaccgaacgc cccgaggaat gcgcggtgcg gcggctgcgc	240
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gatgtcggcg gcggcatgat cgagcatgag gtggtcgaca tctatctggc ctatgccaaa	360
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tacgatctgg cggccgaggc cggtcggcat cccgagcggt tctcgaaatg gctcaacatc	480
tatctgtcga gccatcttga ccggattttc ggatcgatcc tgcgcggctg a	531

<210> 25

<211> 65

<212> DNA

<213> Artificial Sequence

<220>

<223> PCR primer containing Streptomyces sp CL190 DNA

<400> 25

ggggtaccgc ggccgcacgc gtctatgcac caacctttgc ggtcttgttg tcgcgttcca	60
gctgg	65

<210> 26

<211> 60

<212> DNA

<213> Artificial Sequence

<220>

<223> Oligonucleotide containing *S. cerevisiae* DNA

<400> 26

gagctccacc gcggcgccg cgtcgactac ggccgcagga ggagttcata tgtcagagtt 60

<210> 27

<211> 60

<212> DNA

<213> Artificial Sequence

<220>

<223> Oligonucleotide containing *S. cerevisiae* DNA

<400> 27

tctaccaaag gaagaggagt tttaactcga gtaggaggca catatgtctc agaacgttta 60

<210> 28

<211> 60

<212> DNA

<213> Artificial Sequence

<220>

<223> Oligonucleotide containing *Streptomyces* sp CL190 and
R. capsulatus DNA

<400> 28

caagaccgca aaggttggtg catagacgcg gtaaggaggc acatatgagt gagcttatac 60

<210> 29

<211> 60

<212> DNA

<213> Artificial Sequence

<220>

<223> Oligonucleotide containing *R. capsulatus* DNA

<400> 29
cctgcgcggc tgagcggccg cggatccgat cgcgtgcggc cgcggtaccc aattcgccct 60

<210> 30

<211> 60

<212> DNA

<213> Artificial Sequence

<220>

<223> Oligonucleotide containing Streptomyces sp CL190
and S. cerevisiae DNA

<400> 30
tgtcattgaa aagatatgag gatcctctag gtacttccct ggcgtgtgca gcggttgacg 60

<210> 31

<211> 60

<212> DNA

<213> Artificial Sequence

<220>

<223> Oligonucleotide containing Streptomyces sp CL190 DNA

<400> 31
cgattccgca ttatcggtag gggtagctac ctagaactag tggatcccc gggctgcagg 60

<210> 32

<211> 60

<212> DNA

<213> Artificial Sequence

<220>

<223> Oligonucleotide containing N. tabacum and S. cerevisiae DNA

<400> 32
ctttcctgaa acataattta taatcagatc ggccgcagga ggagttcata tgtcagagtt 60

<210> 33

<211> 60

<212> DNA

<213> Artificial Sequence

<220>

<223> Oligonucleotide containing *N. tabacum* and *R. capsulatus* DNA

<400> 33

ttcggatcga tcctgcgcgg ctgagcggcc gatctaaaca aacccggaac agaccgttg 60

<210> 34

<211> 59

<212> DNA

<213> Artificial Sequence

<220>

<223> Oligonucleotide containing *N. tabacum* and *S. cerevisiae* DNA

<400> 34

ctttcctgaa acataattta taatcagatc ggccgcagga ggagttcata tgtcagagt 59

<210> 35

<211> 60

<212> DNA

<213> Artificial Sequence

<220>

<223> Oligonucleotide containing *N. tabacum* and *S. pombe* DNA

<400> 35

tcgttgctaa ggatcccccg ggatccggcc gatctaaaca aacccggaac agaccgttg 60

<210> 36

<211> 13

<212> DNA

<213> Artificial Sequence

<220>

<223> Oligonucleotide containing NotI restriction site

<400> 36
catggcggcc gcg

13

<210> 37

<211> 13

<212> DNA

<213> Artificial Sequence

<220>

<223> Oligonucleotide containing NotI restriction site

<400> 37
gatccgcggc cgc

13

<210> 38

<211> 60

<212> DNA

<213> Artificial Sequence

<220>

<223> Oligonucleotide containing *S. cerevisiae* DNA

<400> 38
ttaaataagg aggaataaac catggcggcc gcaggaggag ttcatatgtc agagttgaga

60

<210> 39

<211> 60

<212> DNA

<213> Artificial Sequence

<220>

<223> Oligonucleotide containing *A. thaliana* DNA

<400> 39

aacaacaaca acatgacccg ggatccggcc gcgatccgag ctcgagatct gcagctggta 60

<210> 40

<211> 60

<212> DNA

<213> Artificial Sequence

<220>

<223> Oligonucleotide containing *S. cerevisiae* DNA

<400> 40
tcgattaaat aaggaggaat aaaccatggc ggccgcagga ggagttcata tgtcagagtt 60

<210> 41

<211> 60

<212> DNA

<213> Artificial Sequence

<220>

<223> Oligonucleotide containing *R. capsulatus* DNA

<400> 41
gattttcgga tcgatcctgc gcggctgagc ggccgcgatc cgagctcgag atctgcagct 60

<210> 42

<211> 60

<212> DNA

<213> Artificial Sequence

<220>

<223> Oligonucleotide containing *S. cerevisiae* DNA

<400> 42
tcgattaaat aaggaggaat aaaccatggc ggccgcagga ggagttcata tgtcagagtt 60

<210> 43

<211> 60

<212> DNA

<213> Artificial Sequence

<220>

<223> Oligonucleotide containing *S. pombe* DNA

<400> 43

ttcatcgttg ctaaggatcc cccgggatcc ggccgcgatc cgagctcgag atctgcagct 60

<210> 44

<211> 61

<212> DNA

<213> Artificial Sequence

<220>

<223> Oligonucleotide containing *R. capsulatus* DNA

<400> 44

ttaaataagg aggaataaac catggcggcc gtaaggaggc acatatgagt gagcttatac 60

t 61

<210> 45

<211> 61

<212> DNA

<213> Artificial Sequence

<220>

<223> Oligonucleotide containing *R. capsulatus* DNA

<400> 45

gcctgcgcgg ctgagcggcc gcggatccga tggccgcgat ccgagctcga gatctgcagc 60

t 61

<210> 46

<211> 60

<212> DNA

<213> Artificial Sequence

<220>

<223> Oligonucleotide containing *S. pombe* DNA

<400> 46
ttaaataagg aggaataaac catggcggcc gtaggaggca catatgagtt cccaacaaga 60

<210> 47

<211> 60

<212> DNA

<213> Artificial Sequence

<220>

<223> Oligonucleotide containing *S. pombe* DNA

<400> 47
accttaattc atcgttgcta aggatcccc ggccgcgatc cgagctcgag atctgcagct 60

<210> 48

<211> 1356

<212> DNA

<213> *Saccharomyces cerevisiae*

<400> 48
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<210> 49

<211> 1332

<212> DNA

<213> *Saccharomyces cerevisiae*

<400> 49

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<210> 50

<211> 1191

<212> DNA

<213> *Saccharomyces cerevisiae*

<400> 50

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<210> 51

<211> 1197

<212> DNA

<213> *Saccharomyces cerevisiae*

<400> 51

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<210> 52

<211> 1386

<212> DNA

<213> *Arabidopsis thaliana*

<400> 52

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<211> 684

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<213> Artificial Sequence

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<223> Schizosaccharomyces pombe IDI1 (IPP isomerase)

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<211> 531

<212> DNA

<213> Artificial Sequence

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<400> 55

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<213> Streptomyces sp.

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<210> 57

<211> 6798

<212> DNA

<213> Artificial Sequence

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<223> Streptomyces sp CL190 gene cluster containing mevalonate pathway
and IPP isomerase orfs

<400> 57

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<223> Operon containing A. thaliana and S. cerevisiae DNA

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DATE	TIME	NAME	AGE	SEX	REL.	EDUC.	IND.	PROF.	IND.	PROF.
1911	11:30	JOHN	25	M	SON	HS	CLERK	CLERK	CLERK	CLERK
1912	12:00	MARY	22	F	DAUGHTER	HS	SEWING	SEWING	SEWING	SEWING
1913	12:30	JOHN	20	M	SON	HS	CLERK	CLERK	CLERK	CLERK
1914	13:00	MARY	18	F	DAUGHTER	HS	SEWING	SEWING	SEWING	SEWING
1915	13:30	JOHN	15	M	SON	HS	CLERK	CLERK	CLERK	CLERK
1916	14:00	MARY	12	F	DAUGHTER	HS	SEWING	SEWING	SEWING	SEWING
1917	14:30	JOHN	10	M	SON	HS	CLERK	CLERK	CLERK	CLERK
1918	15:00	MARY	8	F	DAUGHTER	HS	SEWING	SEWING	SEWING	SEWING
1919	15:30	JOHN	5	M	SON	HS	CLERK	CLERK	CLERK	CLERK
1920	16:00	MARY	3	F	DAUGHTER	HS	SEWING	SEWING	SEWING	SEWING